2002 ORIGIN-DESTINATION SURVEY
AROUND TURTLE LAKE

An origin-destination survey was conducted on the principal highway routes near the corporate limits of the City of Turtle Lake including USH 8 east and west as well as USH 63 north and south of the community. The primary purpose of the survey was to determine the existing travel patterns on these major roadways leading to Turtle Lake and reporting on the trips passing completely through the area as well as the trips going to or from the city that were collected at each interview location.

The accompanying map illustrates the internal zone configuration of four zones representing dissimilar land use and/or commercial activity. For this particular survey zone four on the map represents the city's central business district with other distinct or characteristically unique areas of the city represented from zone to zone. Also shown on the map are the four interview sites at each of the highway routes passing through the area. Traffic was surveyed outbound for eight consecutive hours beginning at 10:00 a.m. and ending at 6:00 p.m. to capture at least one of the daily peak (afternoon) traffic periods throughout late-July of 2002. The complete survey was then later processed and factored up to represent average daily traffic (ADT) for a 24-hour period.

All interviews were conducted in a uniform procedure that incorporated stopping vehicles as they approach the survey station and asking motorists predetermined questions about their trip. Essential questions that were asked included origin of the trip being made, destination of the trip, the type of vehicle used and primary purpose of the trip as well as the number of occupants in each vehicle. Following are the 24-hour trip results for each of the four survey locations. Local represents any trip within the zonal network while Through represents trips passing completely through the study area. The slash mark separates heavy trucks from all vehicles.

TOTAL TRIPS

Station Location (4 Origin Destination Sites)		Total Trips (All Vehicles/Heavy Trucks)	Trip % (All Vehicles/Heavy Trucks)
USH 63 South	Local	1629/278	27.7%/43.6%
	Through	4255/ 359	72.3%/56.4%
	Total	5884/637	100%/100%
USH 8 East	Local	3149/189	44.4%/20.3%
	Through	3944/740	55.6%/79.7%
	Total	7093/929	100%/100%
USH 63 North	Local	1383/69	30.7%/12.9%
	Through	3119/464	69.3%/87.1%
	Total	4502/533	100%/100%
USH 8 West	Local	2676/311	54.2%/26.3%
	Through	4935/873	45.8%/73.7%
	Total	7611/1184	100%/100%

Following are the Through trips by each of the four origin-destination stations. The recording station is in the left hand column and the through trip routes are in the remaining columns. Once again the slash mark separates all vehicles from heavy trucks.

THROUGH TRIPS

Station Location	USH 63 S	USH 8 E	USH 63 N	USH 8 W	Total
USH 63 South	-----	1211/158	2808/141	237/60	4256/359
USH 8 East	1596/324	-----	51/16	2297/400	3944/740
USH 63 North	1097/70	181	-----	1841/394	3119/464
USH 8 West	185/88	3154/538	1596/247	-----	4935/873
Total	2878/482	4546/696	4455/404	4375/854	16,254/2436

The next table looks at the number of Local trips or those trips with an origin or destination within one of the four subdivided zones found within the City of Turtle Lake. Again the slash mark separates all vehicles from heavy trucks.

LOCAL TRIPS

Station Location	Zones				Totals
	#1	#2	#3	#4	
USH 63 South	450/111	380/77	432	367/90	1629/278
USH 8 East	998/68	480/49	907/13	763/59	3149/189
USH 63 North	519/33	219	279	366/36	1383/69
USH 8 West	737/80	166	1159/106	614/125	2676/311
Total	2704/292	1246/126	2777/119	2110/310	8837/847

BYPASS TRIPS

The Through and Local Trip tables for Turtle Lake indicate that if a southern USH 8 bypass facility were in place today, an estimate of 4,130 vehicles or nearly 60% of the total trips from USH 8 east and nearly 25 % of the total trips from USH 63 would utilize the southeast segment between USH 63 south and USH 8 east. Included in this figure are 710 heavy trucks or 50% of the total truck traffic on USH 8 east and 38% of the total truck traffic on USH 63 south. These figures are attained as a result of averaging the through trips between USH 8 east and west (2,726/469) and also averaging the through trips between USH 63 south and USH 8 east (1,404/241).

The amount of trips on the southwest segment would be 2,937 vehicles and includes the same USH 8 east and west average (2,726/469) as well as the average trips between USH 63 south and USH 8 west (211/74). Included in this figure are 543 heavy trucks or nearly 25% less than the USH 8 southeast segment. Based upon current (2000) AADT volumes along USH 8/63 in the City of Turtle Lake, the amount of vehicles removed from the existing highway through Turtle Lake would fall within the range of a 35 to 38% reduction in overall traffic volumes in the city.

A northern bypass of Turtle Lake on USH 8 indicates an estimate of 4,445 vehicles on the northwest segment between USH 8 west and USH 63 north. Included are 790 heavy trucks or more than 11% greater than the southeast segment of the bypass. The average number of through trips between USH 8 east and west remains the same with 2,726/469 while the average number of trips between USH 8 west and USH 63 north is 1,719/321 for a total of 4,445/790 trips assigned to this segment of the bypass. The northeastern segment of a USH 8 bypass has 36% less traffic than the northwestern segment and includes the USH 8 east and west figure of 2,726/469 and 116/8 trips between USH 8 east and USH 63 north for a total of 2,842/477 vehicles. Overall, the USH 8 northwest segment provides the greatest reduction in central business district traffic with 41%.

Bypass traffic from the survey on USH 63 west of Turtle Lake indicates 3,672 vehicles on the northwest segment between USH 8 west and USH 63 north. Included are 427 heavy trucks or 80% of the total amount recorded on USH 63 north. The average number of through trips between USH 63 north and south is 1953/106 while the average number of trips between USH 63 north and USH 8 west is 1719/321 for a total of 3,672/427 trips placed upon this segment of the bypass. However, the southwestern segment of the USH 63 bypass has considerably less traffic with 2164/180 trips assigned to this portion including just 211/74 between USH 63 south and USH 8 west. Once again based upon current (2000) AADT volumes along USH 8/63 in Turtle Lake, the amount of vehicles removed in the city's central business district would be about 34%.

Another bypass scenario combines both a USH 8 southern bypass with a USH 63 north connection just east of the central business district. One of the advantages of such a dual bypass configuration is the possibility of combining both USH 63 north and south through traffic with USH 8 east and west through traffic on the southern USH 8 segment between USH 63 north and USH 63 south. This section of the bypass would then act as the crossroads for all traffic traveling through the Turtle Lake area. By combining these two major highways through the region, the key southern portion of the bypass is estimated at carrying 7802 vehicles including 1,137 heavy trucks. With this type of bypass design in place the following traffic volumes are estimated on each of the four highway routes surrounding the area: USH 63 north–3,788/435; USH 8 east–4,246/718; USH 63 south–3,568/421; and USH 8 west–4,656/864.

VEHICLE TYPE, OCCUPANCY, AND TRIP PURPOSE

Also collected during the survey were the vehicle classification type and trip purpose percentages as well as the vehicle occupancy ratio.

Vehicle Type	USH 63 S	USH 8 E	USH 63 N	USH 8 W
Autos	46.6%	49.2%	47.9%	50.2%
Light Trucks (pick-ups, vans)	42.6%	37.7%	40.3%	34.2%
Heavy Trucks (delivery, semi-trailers)	10.8%	13.1%	11.8%	15.6%
Total	100%	100%	100%	100%

Purpose Type	USH 63 S	USH 8 E	USH 63 N	USH 8 W
Home	62.5%	47.2%	36.2%	63.0%
Work	13.6%	18.0%	12.1%	20.6%
Recreation	2.8%	7.8%	28.5%	5.0%
Other	21.1%	27.0%	23.2%	11.4%
Total	100%	100%	100%	100%

Vehicle Occupancy Ratio	USH 63 S	USH 8 E	USH 63 N	USH 8 W
Persons per vehicle	1.84	1.63	1.73	1.83